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Oral mucocele – diagnosis and management: A series of 3 cases in children and adolescent

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Abstract

Mucoceles are salivary gland disorder seen in the oral cavity. Most common site for these lesions is lower lip; however, they are also seen at other sites such as buccal mucosa, lower labial mucosa, floor of mouth, tongue, etc. Trauma due to lip biting habit is the main etiology behind these lesions. These are painless lesions which can be very easily diagnosed clinically. In this article, we present three cases of mucoceles in children and adolescents and also discuss clinical presentation, diagnosis and various treatment options available for management of mucoceles.

Keywords: Extravasation, lower lip, mucocele, retention, trauma

Introduction

Mucocele is a mucus filled cyst that is seen in oral cavity, and sometimes, paranasal sinuses or lacrimal sac ^[1]. The term ‘mucocele’ is derived from Latin words, mucus and cocele. Cocele means cavity ^[2]. This lesion results from the collection and accumulation of mucous due to any alteration in the anatomy or physiology of minor salivary glands. Mucoceles can develop at any site intraorally where minor salivary glands are present. They can occur in any age group, but most commonly young patients in second decade are affected ^[1, 2].

Clinically, there are two types of mucoceles, extravasation and retention type. Extravasation type occurs due to the escape and accumulation of saliva from the salivary gland ducts and acini in surrounding connective tissues. This type of mucocele is seen in minor salivary glands. Retention type occurs due to any obstruction of salivary gland duct caused by a sialolith or dense mucosa or scar contracture in duct and is commonly seen in major salivary gland ducts. However, clinically no distinct difference is present between both types of mucocele. When mucocele is present at the floor of the mouth, it looks like ‘belly of a frog’ and hence termed ‘ranula’ ^[2, 3].

Clinically, mucocele is a discrete, soft, bluish, painless and translucent cystic swelling of the mucosa. The colour of the swelling ranges from normal pink to deep blue. The colour depends on the size of the lesion as well as proximity of the lesion to the surface. The cyanosis and vascular congestion along with translucency of the accumulated fluid result in the deep blue to purple colour of the swelling. Mucoceles can occur in single or multiple numbers, they often rupture, leaving slightly painful erosions that resolve and heal within few days ^[2, 4].

The two most important etiological factors for development of mucoceles are trauma and obstruction of salivary gland duct. Mucus is produced predominantly by the minor salivary glands and major sublingual salivary glands. Physical trauma causes exudation of saliva into surrounding connective tissues and subsequently, inflammation may occur.³ Lip biting and tongue thrusting habits are aggravating factors ^[4]. The extravasation type of mucocele undergoes three developmental phases. During first phase, there is escape of saliva from salivary duct into the surrounding tissues. During second phase, granuloma formation occurs. In the last phase, pseudocapsule formation occurs without epithelium ^[5].

Case 1

A 12-years old female child reported with chief complain of swelling in the lower lip since 10 days (Fig 1a). It had increased in size since two days.

There was no history of any pain or any discharge associated with the swelling. No history of fever or malaise was present. On local examination, swelling was soft, fluctuant and round in shape. Patient gave h/o lip biting habit. On the basis of history and clinical findings, diagnosis of mucocele was made. Lesion was excised along with marginal salivary glandular tissues under local anesthesia. The lesion was separated from the mucosa and resected from the base (Fig 1b, 1c). Suturing was done (Fig 1d). On regular follow up, healing and further recovery was uneventful. There was no recurrence of lesion during one year follow up.

Case 2

A 10-years old male child reported with the chief complain of small swelling in the lower lip since 15 days (Fig 2a). There was no history of any pain associated with the swelling. Patient gave history of previous appearance of similar swelling twice which ruptured on their own with watery discharge. No history of fever or malaise was present. On local examination, swelling was soft and fluctuant. Patient gave h/o lip biting habit. On the basis of history and clinical findings, diagnosis of mucocele was made. Lesion was excised alongwith marginal salivary glandular tissues under local anesthesia (Fig 2b). Suturing was done (Fig 2c). On regular follow up, healing and further recovery was uneventful. There was no recurrence of lesion during one year follow up.

Case 3

An 8-year old male child had chief complain of swelling in the lower lip since 15 days (Fig 3a). There was no history of any pain or discharge associated with the swelling. There was no history of previous appearance of similar swelling. No history of fever or malaise was present. There was remarkable increase in size of swelling in last 3 days. On local examination, swelling was soft, fluctuant and measuring 1.5 cm in diameter. Mother gave h/o traumatic injury to lip with pencil around 3 weeks back. On the basis of history and clinical findings, diagnosis of mucocele was made. Lesion was excised under local anesthesia (Fig 3b). Suturing was done. On regular follow up, healing and further recovery was uneventful. There was no recurrence of lesion during one year follow up (Fig 3c).

Discussion

Mucocele is the common salivary gland disorder. It is characterised by accumulation of mucoid material with well circumscribed, translucent or bluish coloured lesion of variable size. These lesions are most commonly seen in the lower lip or labial mucosa (73.7%), followed by tongue as the second most common location (15.4%). Other sites include the buccal mucosa, palate, retromolar region and posterior dorsal area of the tongue. Size may vary from few millimeters to centimeters. They are rarely larger than 1.5 cm in diameter but if present in deeper regions, they are usually larger. They are usually dome shaped swellings with intact epithelium over it [1, 2, 4]. This lesion may persist from a few days to 3 years. The incidence of mucoceles is generally high, 2.5 per 1000, frequently occurs during second decade of life and is also prevalent in children, adolescents and young adults. There is no gender predilection [4, 5]. Mucoceles can cause difficulty in speaking or chewing [5].

Mucocele may develop either as a fluid filled vesicle in the superficial mucosa or as a fluctuant nodule lying deep within

the connective tissue. Often, spontaneous rupture and drainage of the accumulated mucin followed by subsequent recurrence occurs. The surface of long standing lesions may show fibrosis [6]. The site of lesion, previous history of lip trauma, rapid appearance, variations in size, bluish colour and the consistency contributes in diagnosis of such lesions. Fine needle aspiration cytology reveals retention of mucous, histiocytes and certain inflammatory cells. In retention type mucoceles, cystic cavity with epithelial wall lined by cuboidal cells is present while the extravasation type is a pseudocyst and shows inflammatory cells and granulation tissues. The wall of cystic cavity is made up of collagen fibrils. Chemical analysis of aspirated saliva will show high amylase content and high protein content. Radiography is helpful in diagnosis of ranulas to confirm presence of any sialolith. Localization and extension of ranula can be done by Computed Tomography (CT scan) or Magnetic Resonance Imaging (MRI). Histopathologically, the lesion shows ductal epithelium, granulation tissue, pooling of mucin and inflammatory cells [2, 4]. The differential diagnosis of mucocele include fibrous hyperplasia, focal papilloma, lipoma, fibroma, benign or malignant salivary gland neoplasms, oral lymphangioma, oral hemangioma, venous varix, oral lymphoepithelial cyst, gingival cyst, soft tissue abscess or cysticercosis [4].

The most common method used to treat this lesion is conventional surgical excision. Other treatment options include laser, cryosurgery, intra-lesional corticosteroid injection, marsupialization, micro-marsupialization and electrocautery [2]. There is no difference in the treatment of retention and extravasation mucocele. Lesion can be excised completely or marsupialized. Marsupialization is a surgical technique in which an incision is given on a cyst and the margins of the following slit are sutured to form a continuous surface from the exterior to the interior of the cyst. Micro-marsupialization is a minimally invasive technique performed under topical anesthesia. In this procedure the accumulated saliva is drained out and a new epithelialized tract is created along the path of the sutures [7]. Micro-marsupialization is simple and rapid technique with very low recurrence rate and is also considered an ideal treatment for pediatric patient. Small mucoceles are removed with marginal salivary glandular tissues. In case of large mucoceles, marsupialization is done which protect vital structures and decrease the risk of damaging mental nerve and its terminal branches [8]. Lacrimal catheters can be used to dilate the salivary gland duct to remove any obstruction of retention type mucoceles [1, 4]. Cryosurgery is also an effective method in treatment of mucocele. A cryoprobe with a 10-mm diameter round tip is applied for 30-seconds freeze at -81°C temperature followed by an approximately 1 minute defrost [9]. Steroids can also play an important role in management of mucocele. A single intra-lesional steroid injection causes the cystic wall to collapse [10]. The advantages of using CO₂ laser is that it minimizes the recurrence rate and complications and also allows rapid, simple mucocele excision [2, 8].

In all three cases presented here, mucoceles were seen in lower lip region and trauma to lower lip was the main etiology. In one case, the mucocele ruptured twice spontaneously. Although size of the lesion was small in first two cases, but in last case, the lesion was considerably large. Surgical excision alongwith removal of involved minor salivary glands was carried out. There was no recurrence in any of the cases during one year follow up period.

**Fig 1:** Case 1

- a) Mucocele on the lower lip
- b) Excision of the lesion
- c) Surgically excised mucocele
- d) Sutures placed

**Fig 2:** Case 2

- a) Mucocele on the lower lip
- b) Excision of the lesion
- c) Sutures placed

**Fig 3:** Case 3

- a) Mucocele on the lower lip
- b) Surgically excised mucocele
- c) Good healing with no recurrence after one year of follow up

Conclusion

Mucoceles are predominantly found in the lower lips of young patients and is associated with local trauma. Majority of these cases can be diagnosed clinically. There are various treatment options available. Simultaneous excision of surrounding glandular acini, dissection & excision of lesion down to muscle layer and avoiding damage to adjacent gland and duct while suturing are some preventive measures that should be taken to prevent recurrence of the lesion.

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